

NOTES ON SIPHONAPTERA, WITH DESCRIPTIONS OF FOUR NEW SPECIES.

BY C. F. BAKER.

Early in the course of my studies on the Siphonaptera I wrote Dr. Berg in Buenos Ayres, relative to the *Pulex grossiventrix* of Weyenberg which I had referred to *Sarcoapsylla*. He very kindly sent me specimens of both male and female. These show some remarkable characters which justify the foundation of not only a new genus but a new family. I would here again call attention to the fact that we have yet no record of any fleas from bats in this country. The bat species are among the most interesting. I hope collectors having the opportunity will certainly secure specimens from any of our bats.

Family MEGAPSYLLIDÆ, fam. nov.

Body very large in the pregnant female, but the abdomen does not lose the normal texture or structure, the sutures remaining distinct, although much connective membrane is exposed between the plates. Antennæ normal. Eyes very large, in a rather small head. Mouth parts very stout, the labial palpi six or seven jointed (impossible to say which without dissection). Fourth tarsal joint very small, more or less connate with fifth, causing the tarsi to appear four-jointed. Last tarsal joint and claws greatly enlarged, the spines on the former inclining to somewhat foliaceous.

Megapsylla, gen. nov.

Head evenly rounded above in female, uneven and unituberculate in front in the male. Prothorax in the female with five or seven remote, short, stout, dark brown teeth; in the male unarmed. Fore tibiæ very small and short, but swollen. Maxillæ small, extending only to one-half of second joint of maxillary palpi.

Megapsylla grossiventris (*Weyenb.*).

1879, WEYENBERG, Boletin de la Acad. Nat. de Ciencias Repub. Argent. III, p. 188. (*Pulex grossiventris*.)

1895, BAKER, Can. Ent. XXVII, p. 3. (*Sarcoapsylla grossiventris*.)

Length of ♂ 2.5-3.5, of ♀ 4 mm. to often 6.5 mm. when pregnant. Head and thorax, with legs, reddish to dark brown, abdominal plates dark smoky. Edges of antennal groove very minutely and thickly spinose. Sparingly bristled, but the bristles stout; the spines on the legs heavy, those on the fore tibiæ becoming very thick and tooth-like, and those on the fifth tarsal joint more or less flattened. Claws very large and recurved to the length of the fifth tarsal joint. Dorsal segments each with a single row of long bristles, six on a side. Upper claspers of male very large, naked, twice as long as broad, sides subparallel, tips obliquely cut off downward and backward.

Lives on the Armadillo (*Dasypus minutus*) in the Argentine Republic (Weyenberg and Berg.)

Pulex longispinus *Wagner*, *Horæ. Soc. Ent. Ross.* XXIII, 1889, p. 355.

Pulex lamellifer *Wagner*, *ibid.* XXIX, 1895, p. 504.

The descriptions of these two species did not come to my hands until after the publication of the Preliminary Studies. They both belong in my Division I of the genus. The former name was also unfortunately used by me. To the species described under this name by me I will now give the name *divisus*. An examination of further material may show it to be a *Typhlopsylla*.

Pulex multispinosus, sp. nov.

Male. Length, 3 mm. Head flat above, strongly rounded in front, face nearly vertical. Eye rather small but distinct, and near lower edge of head. Antennal groove extending obliquely through center of head to near upper margin; near the lower edge of head, with three very long and stout spines and three smaller in front and three long and stout ones behind. Bristles on second antennal joint as long as third joint. Labial palpi about equalling fore coxæ in length. Pro-, meso, and metanotums of nearly equal length, their discs with numerous small bristles; the pronotum provided with a "comb" of about forty teeth. Dorsal segments, each with one row of medium-sized bristles, twelve on a side, and two rows of minute bristles; ventral segments with a single row each, of four or five on a side. Tarsal spines, all small and weak, especially those on fore tarsi. In fore tarsi joints 2 and 5 are of equal length, a little longer than 1 and about equalling 3 and 4 together. In middle tarsi joints 2 and 5 are of equal length and about three-fourths of 1 which equals 3 and 4 together. In hind tarsi 1 equals 2 and 3 together, 2 equals 3 and 4 together, while 5 is scarcely half of 1. The decrease in length and width of joints in hind tarsi is very marked. Upper claspers very short and broad, trapezoidal in shape and unarmed.

Described from one male collected at Raleigh, N. C., by Messrs. H. H. and C. S. Brimley. The host is the Rabbit (*Lepus sylvaticus*.) This species belongs to my Division II, but is widely distinct from any described species. It has a greater number of teeth in the pronotal comb than any described flea excepting *Hystrichopsylla obtusiceps*.

Pulex gillettei *Baker*.

Prof. A. P. Morse has taken this species on the Screech Owl (*Megascops asio*) at Wellesley, Mass. The habits of the birds of prey make them at least temporary hosts for several species of fleas usually found elsewhere.

Pulex howardii *Baker*.

This flea is proving to be one of our most common and widely distributed species, both geographically and as to hosts. Mr. D. B. Young

has collected it at Newport, Herkimer Co., N. Y., on the Wood-chuck (*Arctomys monax*) and the Flying Squirrel (*Sciuropterus volucella*). Mr. Hubbard has taken it from a nest of the Silvery Mouse (*Cereus giganteus*) at Tucson, Ariz., and in debris of the Colorado River at Yuma, Ariz.

***Pulex brunneri* Baker.**

Collected by Professor J. M. Aldrich at Moscow, Idaho, on the Spermophile (*Spermophilus columbianus*).

Belonging to a group of my Division II, which is composed of essentially American species. This group includes *hirsutus*, *coloradensis*, *brunneri*, *montanus* and *divisus*, and is distinguished by having one or both of the apical spines on the second joint of hind tarsi greatly elongated and exceeding in length joints 3 and 4 together.

***Pulex arizonensis*, sp. nov.**

Male. Length, 2 mm. Head evenly rounded from occiput to mouth. A few bristles below, before and behind antennal groove. Bristles on apex of second antennal joint few but long. Eyes normal. Labial palpi somewhat exceeding fore coxæ. Pronotal comb of eighteen spines. Dorsal segments with two rows of bristles each, the principal row of six to seven bristles on a side. Fore and middle tarsi very weakly spined, hind tarsi with spines long and slender. In fore tarsi joints 1 and 3 are of equal length and a little shorter than 2, while 5 is as long as 1 and 2 together. In middle tarsi joints 1, 2 and 5 are subequal in length and as long as 3 and 4 together. In hind tarsi joint 5 equals 3 and 4 together, and is somewhat shorter than 2, while 1 equals 2 and 3 together; the bristles on the apex of joint 1 are about as long or shorter than joint 2. Upper claspers unarmed, little more than twice longer than wide, sides subparallel, bent below, apex rounded.

Described from a male taken by Mr. Hubbard at Tucson, Ariz., in a nest of Silvery Mouse.

***Typhlopsylla pectiniceps* Wagner.** Horæ Soc. Ent. Ross, XXIII, 1889, p. 347.

***Typhlopsylla bidentatiformis* Wagner.** Ibid., p. 351.

These are two other species previously also overlooked by me. The former is widely distinct from any other *Typhlopsylla* by reason of having combs of fourteen teeth each on either side of the head. The latter is quite near the *unipectinata* of Taschenberg.

***Typhlopsylla assimilis* Tschb. (var. ?).**

Three females, nearer this species than any other, were taken on the Screech Owl (*Megascops asio*) at Wellesley, Mass., by Professor A. P. Morse. This occurrence is to be considered accidental. These

specimens cannot at present be definitely referred to this species without the males.

***Typhlopsylla nudata*, sp. nov.**

Female. Length, 2 mm. This species is well distinguished by the almost entire absence of bristles on the body, coxæ and femora. The labial palpi about equal, the maxillary palpi somewhat exceed, the fore coxæ in length. Head otherwise normal, no vestige of eyes. Spines of tibiæ few and rather weak, spines on fore and middle tarsi very weak, almost entirely absent on the former; on hind tarsi long and slender, those on apex of first joint shorter than joint 2, but one of those on apex of joint 2 is much longer than joints 3 and 4 together, as in *Pulex bruneri* and allies. Middle and hind femora apparently deeply emarginate behind, before the apex, with an acute tooth before the emargination, a character not before noted in any American flea (Skuse mentions it for his *Stephanocircus*). In fore tarsi joints 1, 2, and 3 are subequal in length and little longer than 4, while 5 equals 1 and 2 together. In middle tarsi joint 5 equals 3 and 4 together and is a little longer than 1, the first four joints decreasing in length in this order, 1, 2, 3, 4. In hind tarsi joint 5 equals 3 and 4 together and 1 equals 3, 4, and 5 together, while 2 is somewhat longer than 5.

Described from two females taken by Mr. Hubbard from inner nest of *Neotoma albigula*, at Tucson, Ariz. This is the most interesting species of the genus yet found in North America. When the final disrupting of *Typhlopsylla* comes this will fall in a genus by itself.

***Typhlopsylla charlottensis*, sp. nov.**

Female. Length, 1.75 mm. Head with two oblique rows of spines, the lowest much the stronger. Bristles on apex of second antennal joint short. Labial palpi nearly equalling fore coxæ. Pronotal comb of fourteen stout teeth. Dorsal segments with two rows of bristles, the principal row of five to seven long stout bristles on either side; ventral segments with three to four on a side. Fore coxæ strongly bristled. Spines of fore and middle tarsi very weak, of hind tarsi strong. In fore tarsi joints 1 and 2 are equal in length, 5 equals 3 and 4 together, and 4 is one-half of 1. In middle tarsi 1 equals 2 and 3 together or 4 and 5 together, while 2 equals 5. In hind tarsi spines all short, joint 2 is three-fourths of 1, equals 3 and 4 together and is one-fourth longer than 5.

Described from two females taken in a mouse nest at Massett, Queen Charlotte Islands, by Rev. J. H. Keen. It is nearest to *americana*, from which, however, it is very distinct as described above.